

Issues Regarding Hearing Protection Device Use in Manufacturing and Mining

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Factors affecting the use of hearing protectors in a population of printing workers.

Morata, Fiorini, Fischer, Krieg, Gozzoli, Colacioppo (2001)
Noise and Health 4(13): 25-32.

Study of 124 workers from a printing facility in São Paulo, Brazil:

- Interview on medical history, exposure history and use of HPDs (ear muffs)
- Pure-Tone Audiometry
- Individual noise measurements, including dosimetry



Results

79 (64%) indicated that they wore hearing protectors, but only 16 (20%) of those stated that they wore HPDs all the time when noise-exposed.



Noise Levels

| Noise TWA (in dBA) | N | (%) |
|-----------------------|----|---------|
| ✂ 80 | 20 | (16.1%) |
| 81 to 🕶 85 | 30 | (24.2%) |
| 86 to 🕶 90 | 52 | (42.0%) |
| 91 to 93 | 22 | (17.7%) |

Interview

| Reasons presented by workers for not consistently using HPDs in the presence of noise. | N | % |
|--|----|-----------|
| Cause headaches | 19 | 24 |
| Pressures head | 29 | 37 |
| Cause itching | 34 | 43 |
| Interferes w/job performance | 36 | 46 |
| Interferes w/ communication | 55 | 70 |

| Consistency of HP use | p |
|-------------------------------|----------|
| Causes itching | 0.005 |
| Pressures head | 0.02 |
| Interferes w/job performance | 0.05 |
| Interferes w/ communication | 0.05 |
| Measured (actual) noise level | 0.23 |
| Perception of noise level | 0.33 |
| Self-reported hearing status | 0.05 |
| Audiometric result (nl/HL) | 0.39 |

Conclusions

- Comfort issues
- Interference with communication and job-related sounds/ *over*protection



Factors affecting the use of hearing protectors

(Morata et al., in preparation)

Study of 44 workers and supervisors from the manufacturing and mining sectors in Cincinnati and Pittsburgh

Participants were interviewed or took part in focus groups discussions on hearing conservation topics, including problems with the use of HPDs.



Results

- “You hear the same old complaints, the same old stories. You know, I can’t hear my equipment with my ear plugs and I can’t talk to my co-workers.”
- “It’s not comfortable”
- “You can take them out and put them back in, I don’t like --That’s a hassle.”



Results

- Interference with communication
- Interference with job performance
- Comfort issues
- Inability to detect warning signals when wearing HPDs



The beliefs and attitudes towards the risk of hearing loss among Swedish workers

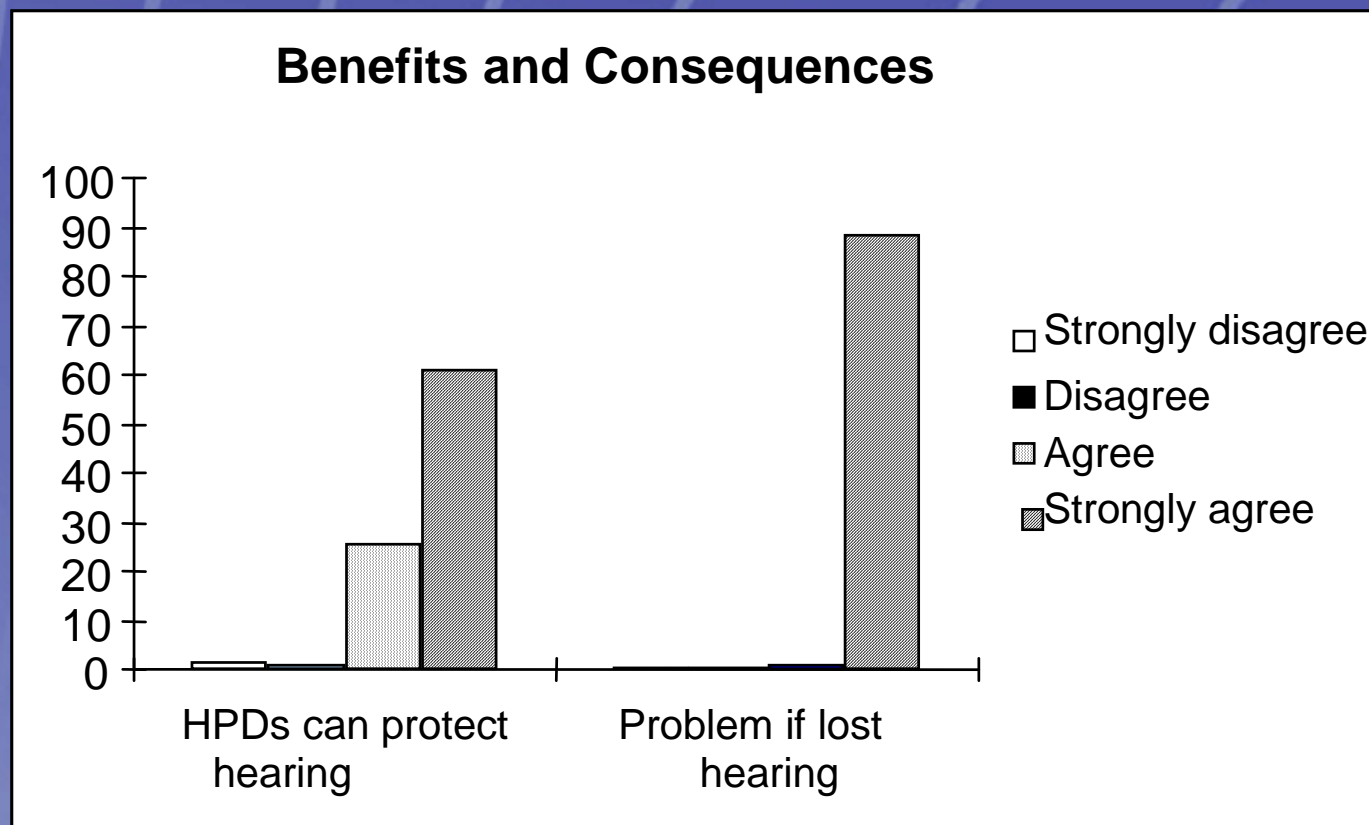
(Svensson, Morata, Johnson, Nylén, Krieg, submitted)

Study of 313 workers from manufacturing companies in Sweden:

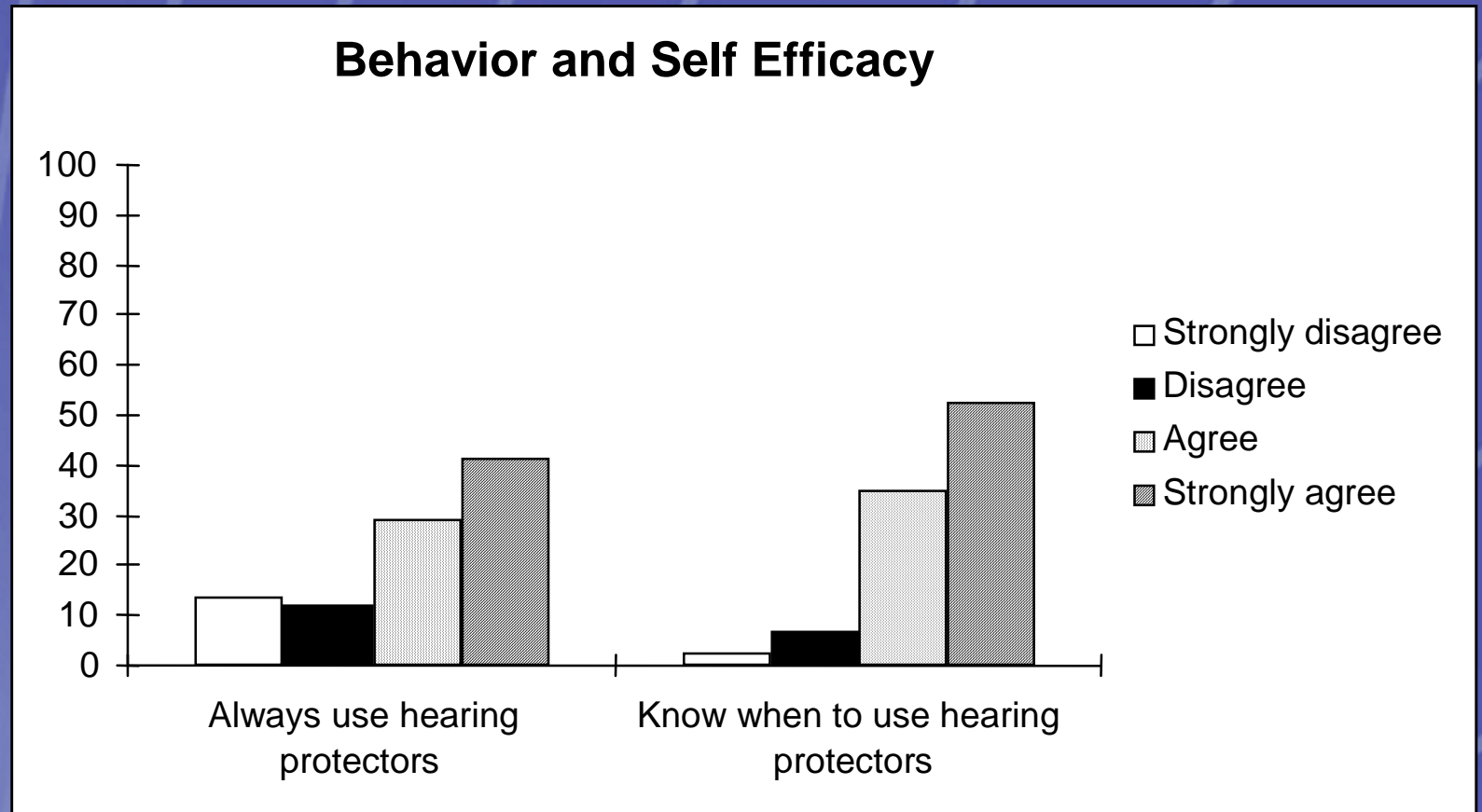
Survey on workers' attitudes, beliefs, and behavioral intentions related to hearing-loss prevention [Stephenson and Merry, 1999; NIOSH contract no. 211-93-006].



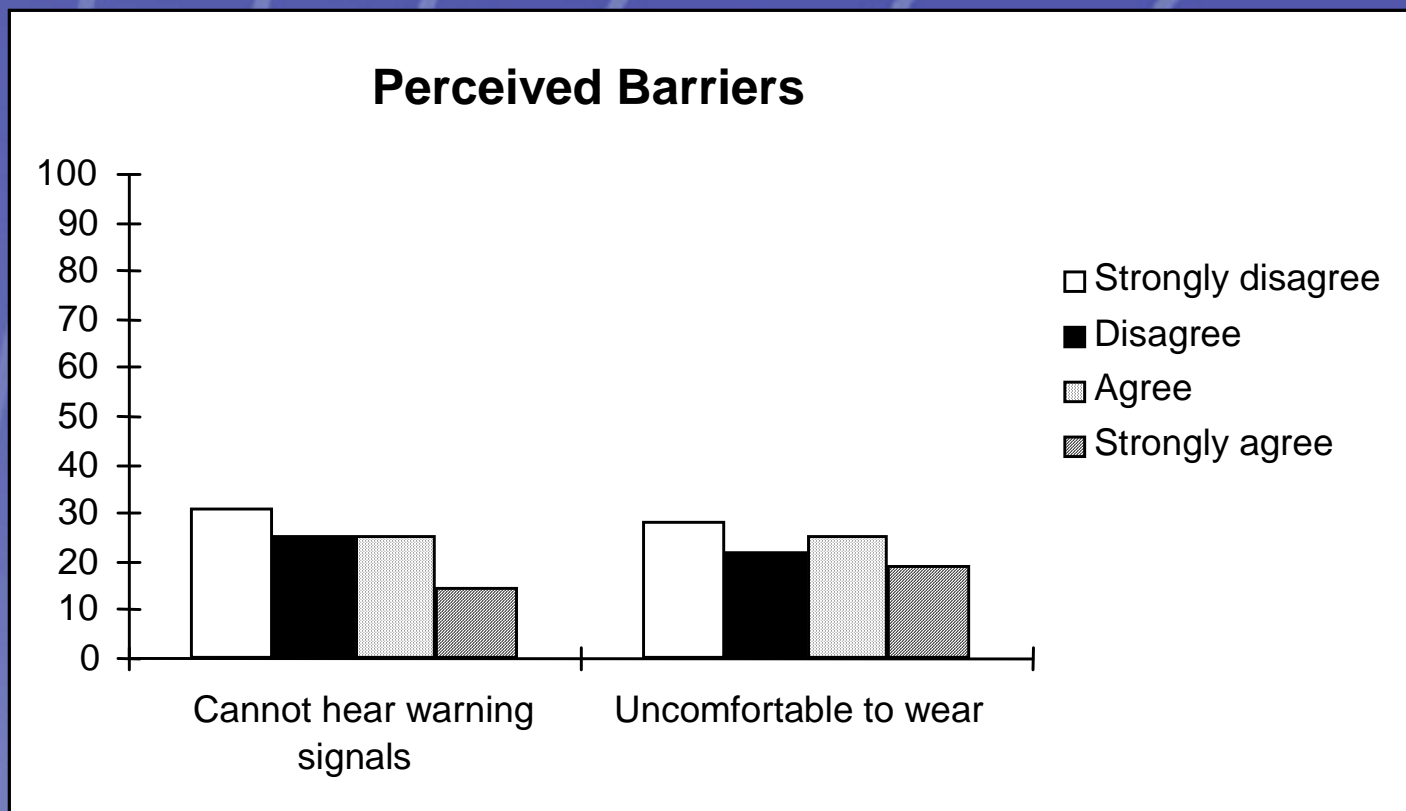
Attitudes regarding risk of hearing loss



Behavior and Self Efficacy



Barriers towards the use of HPDs



NIOSH, 1998



“The best hearing protector is the one that the worker will wear”

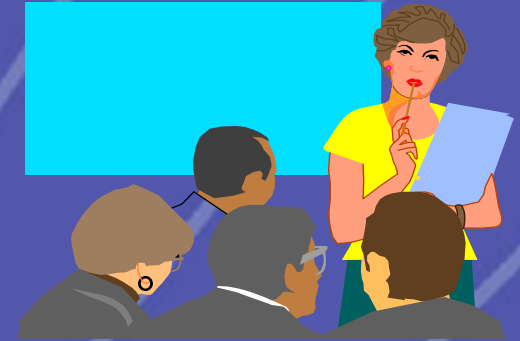
NIOSH Recommendations

To promote a more effective use of HPDs:

- Adequate attenuation
- Compatibility with other safety equipment and environmental factors
- Ease to insert correctly
- Comfort (have several alternatives easily available)



Recommendations



**Studies utilizing a health communication/
promotion approach indicate that education
and training must address two concepts:
Remove barriers and promote self-efficacy**

**Noise-induced Hearing Loss in the Construction Industry
Carol Merry Stephenson, Ph.D.**

http://www.cdc.gov/niosh/noise/accsh01_files/frame.htm



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NIOSH Publications

CRITERIA FOR A RECOMMENDED STANDARD
Occupational Noise Exposure/ *Revised Criteria* 1998
<http://www.cdc.gov/niosh/98-126.html>

PREVENTING OCCUPATIONAL HEARING LOSS
-- A PRACTICAL GUIDE-- 1996
<http://www.cdc.gov/niosh/96-110.html>

